



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

# GLASGOW'S EXPERIENCE WITH MUNICIPAL OWNERSHIP AND OPERATION.

WATER, GAS, ELECTRICITY AND STREET RAILWAYS.

---

BY ROBERT CRAWFORD, LL. D.,

Ex-Councillor, Ex-Burgh Magistrate, Ex-Chairman of the Committee on Health of Glasgow, Member for Ten Years of Committee on Street Railways, Justice of the Peace, and Deputy Lieutenant of the County of the City of Glasgow.

---

The corporation of Glasgow is the representative body to which the citizens entrust its municipal government. Two separate elective bodies are appointed having charge respectively of education and poor law administration, but the Town Council (which is the corporation) has the responsibility of practically all other departments of the city government.

Glasgow has for many years taken a wide and comprehensive view of the work which its governing body should carry out for its inhabitants, and thus we find that the scope of its municipal operations is probably broader and more extensive than what prevails in any other city in the United Kingdom. Not only does the corporation of Glasgow undertake all the duties which naturally and necessarily have to be discharged by every city government, but it handles in addition large enterprises of a commercial character which were at one time generally, and still are quite commonly, entrusted to private enterprise and control.

The work carried on by the corporation falls thus into two main divisions or groups. The first group includes all those services for which no charge is directly imposed for the services rendered, the cost being defrayed out of the rates. These include police and fire protection, roads and bridges, lighting, cleansing, public health and sanitation, infectious disease hospitals, libraries, art galleries, museums, parks, playgrounds, botanic gardens, etc. These and many other minor services are at the call and use equally of every citizen,

without limit and without distinction of class, the cost thereof being met by an assessment based on the rental or annual value of all occupied buildings or lands within the municipal limits.

The second main division of municipal administration consists of those services of a more commercial character which derive no aid from the rates, and for which every person, citizen or stranger, pays only, if and when, he or she makes use of them. Here again the number of services is legion, and comprises among other departments markets, abattoirs, baths and wash-houses, bowling-greens and golf courses, lodging-houses and houses for the laboring classes, etc. Such conveniences are publicly provided and controlled for many and various reasons, but primarily for public health and amenity, and also because the citizens desire that this should be so. None of these are inonopolies in any strict sense, but they are of such manifest public convenience and advantage that their public ownership and management is generally approved. The most important enterprises under this head, however, are those which form the subject matter of this article, viz.:

Gas, Water, Electricity and Street Railways.

These four great departments, with their army of servants and officials, their enormous capital cost, and their princely revenues have all been made or acquired with public money, and are carried on by the corporation profitably and successfully without friction, and to the manifest satisfaction of the people, and the advantage and prosperity of the city.

There is probably no citizen of Glasgow who could be found so foolish or so bold, as to propose to-day, that any of these four great natural communal services should be divorced from public control and handed over again to private ownership. No doubt very large sums in cash could be obtained for each of these civic monopolies, and very stringent conditions could be imposed on the concessionaries for the public protection, but no sum of money however extravagant, and no conditions however apparently advantageous, would now be sufficient to tempt the people of Glasgow to part with the privilege of possessing and managing what have now become municipal necessities.

It is true that the organization of each of these great departments is admirable, that they are all financially very successful, that they are all highly flexible and sensitive to the public wants, and

minister in a marked degree to the public well-being, health and comfort. All this is expected in Glasgow from every department of the municipal service, and as a rule is rendered. But, while this is true, there is something more. There is in Glasgow to-day a large infusion among citizens of every class of the civic spirit. There is civic pride in civic enterprises and institutions. These enterprises are the property of the people, their very own, to be appreciated, cherished and encouraged as well as used. This attachment to and loyal support of things municipal was strikingly shown when, eleven years ago, the street tramways were first operated under city control. The service under the private company had fallen out of public favor, but on the very first day that the corporation cars were run, the people began traveling by the municipal street cars in great numbers, as it almost seemed for the mere joy and pleasure of using their own property. The truth is that the great magnetic power of public possession has, during the last twenty-five years, gone far to develop among the citizens of Glasgow, a feeling of loyalty, responsibility, order and a permanent living interest in civic affairs and business, which is entirely admirable and of great value to all aspects of its public life.

It was not ever thus. As I will show in the short history which follows of each of the four great branches of public service now under consideration, they were all held at one time under separate private ownerships. It is indeed only within the last forty or fifty years that the conviction has begun to grow in the minds of Scotchmen that the community as such should and could conduct its own proper public business, and supply its own communal needs through the agency and under the management of its own public representatives, without the intervention or exploitation of private capital. In each of these enterprises, the private owners were only eliminated after long resistance, at great public cost, and amid much doubt and controversy as to the wisdom or unwisdom of the proposed public ownership. In no case have the anticipations of the overtimid been justified. Good public management, wise, honest and able officials, along with public confidence and support, have led up to complete success and enormous growth and development in every branch. It may be worth while to look briefly for the reasons and causes of this very satisfactory state of things in Glasgow, and generally throughout our Scottish cities and towns.

And first, as to the suffrage: The elective franchise is entirely democratic; every person, male or female, who pays the rates for poor relief is entitled to vote in the election of the council members. The municipal constituency numbers 140,000 persons all entitled to vote, out of a population of 800,000. The city is divided into twenty-five divisions or wards, each ward being entitled to return three council members. One member retires from each ward every year, so that there is maintained a constant interest and movement among the electors who can indicate their views and feelings by re-electing or changing one-third of their representatives annually without violently upsetting the working of the municipal machinery by wholesale changes. Candidates are generally nominated for election or re-election at the annual public meeting of the ward electors, and any person who is a rate-payer in any ward of the city may be a candidate for any division. Contests are frequent,—one-third to one-half of the wards being contested annually. National politics do not enter into the elections to any visible or serious extent, the choice of a councillor being usually dependent on character, experience and business ability, qualified by his views on temperance, finance, labor questions, municipal employment, salaries, etc.

Bribery and corruption of voters is unknown, and the expenses which may be incurred by candidates in carrying on their election is regulated by statute in proportion to the population; seldom exceeding in any ward one hundred pounds. The representatives are unpaid and no councillor can hold any office of profit, or take contracts, or supply goods to the corporation while he holds his office. Councillors are chosen from all ranks, occupations and professions, and are of very varying degrees of wealth and social standing,—merchant princes, large manufacturers, doctors, lawyers, shop-keepers and small tradesmen are accepted as of equal standing and importance in their position as town councillors, and all may rise to posts of importance as chairmen of committees, burgh magistrates, and other prominent offices, not in any way by virtue of their wealth, but solely by the evidence they give of usefulness, talent and public spirit. There is no log-rolling, very little of clique or party feeling and the council as a body is conspicuously honest and free from all taint or suspicion of direct or improper personal interest of any kind. There is of course plenty of public talk and debate on all important points of public interest, but the voting is generally directed by a conscientious desire on the

part of individual members to settle all business in the way best calculated to promote the public interest. It follows from the character and constitution of the council that it forms an excellent body from which the members may be drawn who are to do the very important work of the various great standing committees. The committees who carry on the actual work of such enterprises as water, gas, electricity and tramways, usually consist each of twenty-five members, one being chosen from the representatives of each of the twenty-five city wards. A chairman and vice-chairman are appointed by the council for each committee, and the committees themselves are chosen or re-appointed annually. Meetings of committees is approved by the council. The general public meetings of details of the work done at these meetings are printed in detail in the form of minutes and presented to the whole council for review and discussion. As a general rule the recommendation of these committees is approved by the council. The general public meetings of the council are very fully reported in the press, and as this body is always highly sensitive to public opinion, and their proceedings regarded with great interest by the citizens, there is every guarantee that no abuses or blunders can occur in committee without coming into the full blaze of public criticism and comment.

This, then, is the body of seventy-five honest, intelligent and generally capable men who on behalf of their fellow citizens, undertake without fee or reward, the great responsibility and labor of carrying on the complex and elaborate machinery of municipal government in Glasgow. That they accomplish this with signal success is known to the world. But there is no secret concealed beneath this great success,—no charm or magic in the method. There is nothing in the system which would necessarily and of itself give guarantee of success. The system is undoubtedly good, probably as good as could be devised. The secret of success, however, lies deeper than the mere machinery and must be sought for mainly in the honesty, uprightness, capacity, self-sacrifice and patriotism of the men chosen by an intelligent community and entrusted with this great communal duty.

The chairman of the council is the Lord Provost of the city, who does not receive salary or money allowance of any kind. He holds the office for three years, and is during that period not only the civic but also the social head of the city. He is appointed by the

council itself, as a rule, on account of his long service, ability and high character.

During the period of his office he presides at the public meetings of the city council, and is in constant touch with the chief officials, chairmen of committees, etc., and knows all the main movements of municipal business. Outside of the council he is the leading exponent of municipal policy, ideas and ideals,—very much as the Prime Minister of Great Britain is the recognized mouth-piece of the government. The Lord Provost, however, drops national politics absolutely during his three years of office. He may be, and often is, a keen politician, but just as there are no national politics recognized in carrying on municipal business, so the first citizen, on his election to his office, strips himself entirely of all political color so long as he holds the official status of head of the municipality.

The administrative body which exercises control over Glasgow's municipal industries is thus by its character, composition and experience admirably adapted to carry on successfully these great civic commercial undertakings on sound commercial and business lines. The absence of the political elements and of direct self-interest, the free public criticism, the method of election and the existence of the civic spirit, impart to such a body just the right tone, temper and capacity for sound, sane and efficient administration of public affairs. The staff of paid municipal officers and employees are selected on similar lines. There are no gifts of lucrative offices or posts to confer on political friends or supporters, experience, merit and ability alone being recognized. As a rule, the official heads of the great departments are invested with full powers of discipline and control over the various staffs of public employees.

The committees on gas, water, electricity and street cars deal, as a rule, only with important matters of policy and organization, leaving to the chief manager of the department absolute discretion and power in the matter of employment or dismissal of the personnel of municipal workers. His aim and object being efficiency, he permits no other consideration whatever to influence him in carrying on his work as responsible departmental chief. The municipal employees number over 15,000, and a considerable proportion have votes. These employees from time to time have made efforts publicly to influence the election of councillors who had expressed themselves as

specially in sympathy with their interests as wage-earners, but up to the present this has not assumed the proportions of a very serious danger, although it may become so in time, and may have to be dealt with for the protection of municipal independence.

The wages and general conditions of the men employed by the municipality are exceedingly good, better indeed than those prevailing in private employment, but not extravagantly so. The very best class of men are anxious to enter into municipal employment on account of its permanence and other advantages, and the supply obtainable is practically unlimited. Civility, courtesy, smartness and reliability in their contact with the public are required from all such public servants, and, as a rule, are practiced. And thus it comes that the enterprises of which I am writing are not only conducted economically and efficiently, but in addition are most satisfying to the citizens, who would never consent to part with them as municipal possessions.

A very important question of principle arises in connection with the finance side of the group of municipal services now under consideration. Quite a number of municipalities who carry on similar enterprises successfully take from their surplus funds annually considerable sums for relief of the municipal rates. Glasgow has constantly declined to follow this example. She has always acted on the principle that each public service should be water-tight, asking nothing, and giving nothing financially to any other department of the public service. All profits are therefore used to lower the charges to the public, or to increase the facilities for use of the various services. This self-denying policy seems perfectly sound and eminently equitable. To each citizen there comes in this way his due proportion of advantage according to the measure of his use of the public services or utilities. As a result of this policy Glasgow claims that not only has she the best, but very much the cheapest supply to the users of water, gas, electricity and street railroads in Great Britain.

If further justification be sought for the public possession and operation of these undertakings, it is to be found in the nature of the services themselves in relation to the public convenience. In the first place, these enterprises are in the nature of civic monopolies,—competition in the supply of water, gas, electricity and tramways, all requiring as their essential condition, the use of the public streets



and highways, and it could in no case be of advantage that rivalry should exist. The streets being public property, and set aside for public uses, cannot be given over to the tender mercies of competing undertakings to deal with at their own will, and in modern days with its enormous increase and development of such public services there seems no reasonable course possible other than the entire public possession and control of every enterprise which requires the use of the streets of a city for its operation.

I have set down at some length the general reasons and ideas prevailing in Glasgow as to public ownership, and some of the reasons and conditions which have led to its success, but it must be further added that the bold and progressive example set by Glasgow has had the result over the whole United Kingdom of greatly stimulating municipal enterprise, and of generally developing municipal ownership. If Glasgow, through laxity or bad management or any other cause, had unfortunately made a failure in any of these services, her failure would have acted as a check on the municipal progress of the whole country. Happily, nothing of this kind has occurred. The history of each of these and of other departments may be scanned, without finding the record of any important failure in management or serious blunder in policy. Glasgow's success has in this way been a valuable contribution to the progress of communal government in the United Kingdom and even beyond it, and a constant stream of students of municipal institutions and civic control sets towards the city of St. Mungo. These students come from every city and every country and from no country in such numbers as the United States. All who are interested in these matters are cordially welcomed, and every facility afforded them to learn all about everything. Glasgow is cosmopolitan enough to desire that, if she has any knowledge or experience of any kind that is likely to be useful to other communities, all are welcome to take advantage of it.

The following are the chief points of interest (avoiding details and figures as much as possible) relating to the several departments under review.

#### *Glasgow's Water Supply.*

In 1855 the Glasgow Corporation obtained powers from Parliament to acquire by purchase the works of two private companies

which were then supplying the city of Glasgow with water, and to construct new works for bringing a plentiful supply of pure water to the city and surrounding districts from Loch Katrine and other lochs in the Perthshire Highlands, and distant from Glasgow over thirty-five miles. The scheme had been under discussion for ten years, and was bitterly opposed by the two private companies, costing the city in parliamentary expenses alone over £26,000 sterling. The supply up to that time had been meagre in quantity, and most execrable in quality, being mainly drawn from the river Clyde, which was fast becoming a poisonous and fœtid stream. In March, 1860, the city was able to turn off the river water as a source of domestic supply forever.

The citizens of that date were not all models of enlightenment, and the bold and novel proposal to bring a supply of water from a series of remote highland lakes with many intervening mountains, was subjected to fierce and long continued opposition by a portion of the rate-payers. Every conceivable kind of calamity was predicted at the ward meetings and in the press, and the most absurd criticism was indulged in, but common sense at length prevailed, and the vast task of tunnelling the mountains taken energetically in hand. The aqueducts have since been duplicated, and the storage capacity now possessed by Glasgow is sufficient to supply the city with clear crystalline cold water to the extent of one hundred million gallons per day. The water is remarkably uniform in quality, temperature and color,—summer sun and winter storm affect it but little,—it is absolutely free from pollution, and needs no filtration. There is certainly not another city in the kingdom,—indeed it is doubtful if anywhere on the face of the earth there is a large population so advantageously situated as the people of Glasgow for water supply in respect of abundance, purity and cheapness. It has been of incalculable value in fostering the arts and industries of the city. Its effect on the tables of mortality was something magical, especially in respect of diarrhœal affections and diseases of the young. The whole effect of this great and bold municipal venture in promoting the health and welfare of the people may never be reckoned up, while its blessings and benefits of many multifarious kinds would fill a volume.

The domestic water rate charged to consumers is only 5d. per pound on rental of dwelling houses, and all other rates proportion-

ately low,—not much more than one shilling per head of the population supplied,—and this for an absolutely unlimited individual supply. The saving of cost to the citizens under their own ownership of water supply (leaving out all questions of quality and quantity) as compared with the cost under private ownership, has been calculated at not less than a million and a quarter pounds sterling. Mr. Bateman, the original engineer of the scheme, made a calculation that the saving in the use of domestic articles by reason of the softness of the water (including soap, tea, coffee, etc.) would more than pay the whole domestic water rate.

Charitable institutions are all supplied free of charge, as are also the public baths and wash-houses belonging to the corporation. Nor does the water department charge the other branches for water used for cleansing purposes, watering streets, flushing sewers, extinguishing fires, etc., thus introducing a freedom and simplicity most beneficial to the public interest. The cost of the whole undertaking amounts to over four million pounds, and the population supplied, inside and outside the city limits, numbers over 1,100,000, the consumption per head being equal to fifty-six and a half gallons per day.

Municipal ownership and municipal management have a splendid and enduring monument in the Glasgow Corporation water works.

#### *Glasgow Corporation Gas Supply.*

Gas was first introduced into Glasgow in 1818. It was not until 1869 that the citizens made up their minds finally that the making and distribution of gas was a public service that ought not to be carried on under private ownership, but rather that it was essentially suited to municipal ownership and management. Until 1869 two gas companies had competed for the business, and had the right to lay their mains and distribute pipes throughout the city. Grumbling and dissatisfaction were general and perpetual. The price was said to be too high, quality bad, service faulty in many respects. After many years of friction and much negotiation, a bill was passed by Parliament (1868-69) authorizing the purchase by the city of the existing companies. The shareholders received perpetual corporation annuities for their entire capital, at the rate of 9 per cent. per annum in the case of one company, and of  $6\frac{3}{4}$  per cent. in the other.

The works so acquired were in a very bad condition of repair, as was shown by the fact that one of the companies had been losing by leakage and unaccounted-for gas as much as 23 per cent. of the total make, instead of about 10 per cent. which is now the Glasgow rate. In short, the works and the mains and pipes had to be practically renewed at the public expense. Four large and modern works, fitted with all the latest machinery and methods for gas production now supply an area of sixteen miles long by twelve in breadth. The gas sold in 1870 amounted to 1,295,866,000 cubic feet,—the price was four shillings and seven pence per thousand feet, and the gross revenue was £235,701.

In 1904-05, the price for domestic consumption was two shillings and a penny per thousand feet,—the gross revenue totaled £800,177, and the amount of gas sold reached the enormous total of close on six thousand millions of cubic feet, and the quantity of coals carbonized reached to seven hundred thousand tons. The entire capital cost to the corporation of their gas undertaking is close on four millions of pounds sterling, from which depreciation has been written off exceeding one and a quarter million pounds sterling. Gas stoves and cooking ranges are hired or sold, and more than 100,000 of these have been brought into use through the organization of the corporation. From every possible aspect the management and control of the gas supply of Glasgow by the city government must be pronounced an unqualified success. The price is low, the supply and quality good, the public convenience fully met in every way, and there is no complaint on the part of any section of the public.

*Glasgow Electricity Department.*

The electric lighting order, conferring on the corporation the sole privilege of publicly supplying electricity for light and power was not applied for until 1890. A small company was then in existence for this purpose, but having no right to use the streets for cables, their business was very limited. This company was acquired by the corporation at the price of £13,000. No one then had or could have any idea of the magnitude to which the undertaking would so rapidly attain. In the year ending May 31, 1905, the gross revenue already amounted to nearly two hundred thousand pounds, and there is every evidence that this will increase by leaps and

bounds for many years to come,—not alone from the increased use of electricity for light, but even more markedly for power purposes. Many users of power are gradually abandoning the use of steam entirely in favor of electric driving. The capital expenditure is now one million and a quarter pounds sterling, and large additions to the various stations are now being made.

The management is in the hands of a committee of twenty-five members of the corporation, and there seems no reason to think that their work could be better done in any other way. The enterprise is commercially sound, and the supply gives every satisfaction to the citizens alike from its convenience and moderate cost. The keeping of this service under public control along with gas and water is manifestly a great public convenience in so far as the opening up of streets is concerned inasmuch as it permits of the official heads of the respective departments arranging together to reduce this to its lowest possible limit.

#### *Glasgow Street Railways or Tram Cars.*

The first tramway in Glasgow was constructed by the corporation and opened on August 19, 1872. The service was by animal traction, and was operated by the Glasgow Tramway and Omnibus Company, to whom the system was leased for twenty-two years. On July 1, 1894, the corporation commenced to operate the tramways as a municipal undertaking,—the company's lease expiring at twelve o'clock on the night previous and a full and complete corporation service was running six hours later. The length of line (single track) leased to the company was sixty miles. The lines now made and authorized to be made come to close on two hundred miles of single track.

Of the total length of tramways made and authorized 62 per cent. is within and 38 per cent. without the municipal boundaries. The lines outside the city project into the outside burghs of Clydebank, Partick, Renfrew, Paisley, Pollokshaws and Rutherglen, and into the counties of Lanark and Renfrew, to Bishopbriggs, Shettleston, Tollcross, Cambuslang and Cathcart. These extensions into the outlying districts have all been made at the request of the communities concerned, and the corporation of Glasgow has always acted with the fullest co-operation and support of all the burgh and county authorities.

The city of Glasgow, with most of the places above mentioned, forms really one community. The corporation, in making arrangements for extensions of the tramway system, has always recognized this fact, and has, consequently, regarded the whole tramway system as one, giving the outside communities exactly the same tramway facilities and at the same fares as are enjoyed by the citizens of Glasgow.

Prior to 1894 the Tramways Committee considered the question of mechanical traction, and reported on various systems. The line, however, being in the hands of the lessees up to the last day of the lease, it was impossible to start with any other system than horse traction. In 1895 a committee was again appointed to go fully into the question of electric traction. This committee finally reported in favor of the overhead system or trolley. The Springburn line, extending to two and a half miles of route, was equipped as a demonstration of the system, and the line opened on October 13, 1898. So satisfactory in every way was this demonstration during the first two months' working that, on December 28, 1898, it was decided to convert the whole of the tramways to the overhead system. The equipment of the whole of the routes was completed by the summer of 1901, and the last horse cars had disappeared by the end of April, 1902.

The power station is situated at Pinkston, on the Forth and Clyde Canal, and is one of the largest traction stations in Europe. It is bounded on one side by the canal, and is connected with both the Caledonian and North British Railways. The building is 244 feet in length by 200 feet in breadth, and the height of the walls is 88 feet. The boiler room, which forms the east bay, with a span of 84 feet, contains sixteen Babcock and Wilcox boilers, each capable of producing 20,000 pounds of steam per hour, at a working pressure of 160 pounds per square inch. The engine room, which forms the centre bay, contains four main engines, designed to work at 4,000 I. H. P., but which are capable of developing a maximum of 5,000. Two of the engines are of American make, and two of British make. Each engine is directly coupled to a three-phase generator, designed for an output of 2,500 kilowatts at a pressure of 5,000 volts.

There are also two auxiliary engines of 800 to 1,000 horsepower, each coupled to a direct current dynamo. In the west bay are situated all the auxiliary plant.

From the feeder panels of the main switchboard in the power station four three-score cables are led to each of five substations, which are situated at Coplawhill and Kinning Park, on the south side of the river; Partick, in the west; Whitevale, in the east, and Dalhousie, near the centre of the city. The units in each of the substations are all of the same size, each static transformer being 200 kilowatts, and each rotary convertor 500 kilowatts.

When the corporation took over the lines in 1894 almost the whole of the system had been previously relaid with steel girder rails, weighing 79 pounds per yard. The corporation introduced a heavier section, weighing 89 pounds, and since 1898 all the rails used, both in renewals and extensions, have been 100 pounds per yard, and in 60 feet lengths. The rails are laid to a gauge of 4 feet  $7\frac{3}{4}$  inches, on a bed of Portland cement concrete 6 inches in depth, and extending 18 inches beyond the outer rails. The feeder system of cables is laid in ducts, which are placed in the centre of the street.

Throughout the whole system the trolley wires are supported in the centre of the track by span wires. In Great Western Road, from Kelvinbridge to Hyndland Road, the centre pole construction has been adopted. There are also a few centre poles on the Springburn route, and also on Glasgow bridge. Wherever possible the span wires have been attached to the buildings on either side of the street by means of rosettes.

The workshops of the department are situated at Coplawhill, on the south side of the Clyde, about a mile from the centre of the city. These cover an area of 28,000 square yards. The ground in this locality has been in the possession of the corporation for several centuries, and this portion was taken over by the tramways department from the Common Good at a valuation. The workshops consist of offices, stores, smiths' shop, sawmill, car-building shop, iron-working shop, car-repairing shop, paint shop, etc. All these departments are fully equipped with the most approved machine tools for making and repairing cars, etc. Nearly all the electric cars have been built in these workshops by the staff of the department.

There are in all nine depots for the accommodation of the electric cars. At each depot there is a roomy office for the accommodation of the traffic staff. The depot foreman has a store, workshop etc., and every convenience for the cleaning and inspection of the cars. At all the depots there are kitchens, bath-rooms, etc. There is

also, at several depots, a well-equipped gymnasium for the use of the men. The department has now 683 electric cars, and arrangements are being made for building an additional number to cope with the increasing traffic.

When the corporation started to operate the system in 1894 the fares were considerably reduced, and halfpenny fares instituted for half-mile stages. From time to time further reductions have been given, and the average distances which can be travelled at the various fares are now as under :

Fare.	Distance.
$\frac{1}{2}$ d. ....	.58 miles
1d. ....	2.30 "
$1\frac{1}{2}$ d. ....	3.48 "
2d. ....	4.64 "
$2\frac{1}{2}$ d. ....	5.80 "
3d. ....	6.89 "
$3\frac{1}{2}$ d. ....	8.15 "
4d. ....	9.09 "

During the year ending June 30, 1894, the number of passengers carried by the lessees was 54,000,000. During the year ending May 31, 1905, the number carried by the corporation cars exceeded 195,000,000.

TABLE SHOWING GROWTH AND PROGRESS OF THE GLASGOW STREET RAILWAYS UNDER MUNICIPAL CONTROL AND OPERATION.

Period (to 31st May).	Length of track (single).	Average cars 16-hour day.	Car mileage.	Passengers carried.	Receipts.	Average receipts per car mile.
1894-5..... (11 months)	64	170.97	5,192,031	57,104,647	£222,121.11.0	10.26
1895-6.....	65	227.66	6,932,650	86,462,594	328,827. 8. 8	11.38
1896-7.....	73	268.20	8,127,111	98,966,658	365,761. 3.10	10.80
1897-8.....	73	280.96	8,483,012	106,344,437	389,216. 9. 6	11.01
1898-9.....	81 $\frac{1}{2}$	305.85	9,071,640	118,775,668	433,128. 0. 6	11.46
1899-1900...	83 $\frac{1}{2}$	316.96	9,657,429	127,628,484	464,786. 15. 2	11.55
1900-1.....	88	322.02	9,847,545	132,557,724	484,872.17.10	11.82
1901-2.....	103 $\frac{1}{2}$	365.41	12,615,021	163,678,190	612,826. 2. 4	11.66
1902-3.....	130	399.58	14,008,750	177,179,549	653,199.18. 2	11.19



SUMMARY OF INFORMATION REGARDING ONE YEAR'S  
WORKING TO MAY 31, 1905.

Total borrowing powers .....	£2,700,000	0.0
Borrowing powers exercised .....	2,232,358.	8.9
Unexhausted borrowing powers .....	467,641.	11.3
Capital expenditure .....	2,763,381.	12.3
Single miles of line open for traffic (average during year)....	144	¼

MILEAGE OF TRACK OPEN FOR TRAFFIC AS AT MAY 31, 1905.

	SINGLE.			DOUBLE.			TOTAL.		
	Miles.	Fur.	Yds.	Miles.	Fur.	Yds.	Miles.	Fur.	Yds.
Owned.....	1		86	68	2	146	68	4	12
Leased .....				5	2	163	5	2	163
	—		—	—		—	—		—
Total .....	1		86	73	5	89	73	6	175

Population served by tramways (city and suburbs).....	over 1,000,000
Traffic revenue .....	£756,480. 8.7
Total revenue .....	764,790.16.8
Working expenses .....	387,167. 9.2
Interest on capital .....	49,906. 4.7
Sinking fund .....	46,919. 8.9
Net balance .....	93,298.13.6

DISPOSAL OF NET BALANCE.

Special depreciation .....	£68,500. 0.0
General reserve fund .....	24,798.13.6
	<hr/>
	£93,298.13.6
Car miles .....	17,943,595
Car hours .....	2,619,822
Passengers carried .....	195,767,519
Total number of units used for traction and car lighting.....	20,268,407
Number of units used per car mile for traction and car lighting	1.13
Average number of cars in use for sixteen hours day.....	448.59
Percentage of working expenses to receipts .....	50.42
Average traffic revenue per car mile .....	10.12d.
Average traffic revenue per car hour .....	5s. 9.30d.
Average traffic revenue per mile of single track.....	£5,253
Average total revenue per car mile .....	10.23d.
Average car miles per day per car .....	109.59
Average speed per hour (miles) .....	7.4
Average car hours per day .....	7,177.59
Average working expenses per car mile (excluding power works cost) .....	4.84d.
Average working expenses per car mile (including power works cost) .....	5.18d.

Average working expenses per car mile (including power works cost and amount expended on permanent way renewals)	5.36d.
Average working expenses per car mile (including total power cost and amount expended on permanent way renewals).....	6.36d.
Average fare paid per passenger .....	.93d.
Average number of passengers per car mile.....	10.91
Average journeys per head of population per annum.....	195.77
Number of cars in stock .....	683
Total amount of sinking fund .....	£449,274.15.2
Amount of sinking fund applied in reduction of debt.....	£449,274.15.2
Amount of general reserve fund .....	£32,589.15.6
Amount of depreciation and permanent way renewals fund....	£777,636.18.8

PERCENTAGE OF EXPENSES TO RECEIPTS.

Working expenses .....	50.42
Corporation of Govan .....	.66
Paisley District Tramways Co. ....	.12
Interest on capital .....	6.50
Sinking fund .....	6.11
Income tax .....	.71
Parliamentary expenses .....	.11
Annual payment to Common Good.....	3.27
Depreciation and permanent way renewals fund.....	19.97
	— 87.87
Net balance .....	12.13
	— 100.00

The staff of the tramways department now numbers 3,500. Of this number 3,020 are members of the Departmental Friendly Society. The weekly contribution per member is 6d., to which the tramways committee add 4d., including 1d., which is placed to the credit of a superannuation fund. The weekly aliment to members who are off work through illness is 15s. for the first six months, and 10s. for the second six months. The amount at the credit of the Superannuation Fund is now £9,591.13.6d. This fund comes into operation in 1911, and is for the benefit of members who, after long corporation service, have become unable for work.

The Friendly and Superannuation Funds have been of great value in making the employees content with their conditions and anxious to remain permanently in municipal employment. It has also had the effect, along with a liberal scale of wages, in keeping off the paid agitator, so that no strikes or threats of strikes have taken place among the men. The wages and general conditions are distinctly better than those paid by private employers for a similar kind

of service, and the supply of suitable men seeking corporation employment is always far in excess of the demand.

The writer has set down the facts relating to Glasgow's street railways at some considerable length and detail, because of the great importance of this form of municipal enterprise, and because of the prominence recently given in America to its municipal ownership of this service. The decision of the corporation to undertake this comparatively new branch of public management was not arrived at without much public doubt and controversy. The success has been so immediate and so great, and the convenience and happiness of the population have been so marvelously enhanced, that all doubt and questioning is now at rest. From the very first morning on which the corporation cars ran on the streets, a loyal and hearty approval was given to the service by the whole body of the people. Even as horse cars the corporation service was an enormous improvement on that of the company. The conversion of the system to electric trolley was accomplished without a hitch, and without a blunder. Fares are exceedingly low, as the tables show, the service swift, bright, clean and frequent. No advertising on the cars is permitted. The conductors, smartly dressed in uniform, are civil and obliging, and satisfaction is universal.

The success of Glasgow's street tramways has had, as already indicated, a vast influence on the history of British tramways. When Glasgow took heart of grace and determined against great opposition that the street monopoly of rails and cars should thenceforth be her own civic property and be controlled by the Town Council, the other great cities of the kingdom stood still for a time and watched this great venture and experiment. Had Glasgow blundered or failed even in a degree, it is quite certain that to-day most of the important cities would have re-leased their street railroads to private companies, and faith in the capacity of public elective bodies to handle such concerns would have been rudely shattered. But the very reverse has been the case. Not only is it true that the striking example of Glasgow has led to the general taking over of the management of their tramway system by all important cities and towns in Britain to the vast advantage of their citizens, but it is equally true that the civic spirit and confidence in communal management of public utilities and services generally has been greatly stimulated and strengthened.

The committee of twenty-five representatives, to whom the Town Council have entrusted all the complex details of an organization so vast as this, has never been composed, nor even contained one member who could be called an expert in street railways. The members have gradually been changed from year to year in the ebb and flow of representation, and are simply ordinary shrewd men of business, without special or technical training or experience of any kind. Common sense, loyalty, honesty and devotion to the interests of the whole community supply the real key to the success of Glasgow in this as in all her other communal enterprises.